

10/589702

IAP11 Rec'd PCT/PTO 17 AUG 2006

SEQUENCE LISTING

<110> Uebele, Victor N.
Connolly, Thomas M.

<120> NUCLEIC ACID MOLECULES ENCODING NOVEL
MURINE LOW-VOLTAGE ACTIVATED CALCIUM CHANNEL PROTEINS
DESIGNATED - ALPHA1H, ENCODED PROTEINS AND METHODS OF USE
THEREOF

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<150> US60/545,446
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2005	2010	2015	
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Arg Thr Arg Lys His Thr Phe Gly Gln Arg Cys Ile Ser Ser Arg Pro			
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Ser Val Trp Glu Ile Val Gly Gln Ala Asp Gly Leu Ser Val Leu		
865	870	875
Arg Thr Phe Arg Leu Leu Arg Val Leu Lys Leu Val Arg Phe Leu Pro		
885	890	895
Ala Leu Arg Arg Gln Leu Val Val Leu Met Arg Thr Met Asp Asn Val		
900	905	910
Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser Ile		
915	920	925
Leu Gly Met His Leu Phe Gly Cys Lys Phe Ser Leu Lys Thr Asp Ser		
930	935	940
Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala		
945	950	955
Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Val Val		
965	970	975
Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe		
980	985	990
Val Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val		
995	1000	1005
Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Thr Arg Ser		
1010	1015	1020
Asp Thr Asp Glu Asp Lys Thr Ser Thr Gln Leu Glu Gly Asp Phe Asp		
1025	1030	1035
Lys Leu Arg Asp Leu Arg Ala Thr Glu Met Lys Met Tyr Ser Leu Ala		
1045	1050	1055
Val Thr Pro Asn Gly His Leu Glu Gly Arg Gly Ser Leu Pro Pro Pro		
1060	1065	1070
Leu Ile Thr His Thr Ala Ala Thr Pro Met Pro Thr Pro Lys Ser Ser		
1075	1080	1085
Pro Asn Leu Asp Val Ala His Ala Leu Leu Asp Ser Arg Arg Ser Ser		
1090	1095	1100
Ser Gly Ser Val Asp Pro Gln Leu Gly Asp Gln Lys Ser Leu Ala Ser		
1105	1110	1115
Leu Arg Ser Ser Pro Cys Thr Pro Trp Gly Pro Asn Ser Ala Gly Ser		
1125	1130	1135
Ser Arg Arg Ser Ser Trp Asn Ser Leu Gly Arg Ala Pro Ser Leu Lys		
1140	1145	1150
Arg Arg Ser Gln Cys Gly Glu Arg Glu Ser Leu Leu Ser Gly Glu Gly		
1155	1160	1165
Lys Gly Ser Thr Asp Asp Glu Ala Glu Asp Ser Arg Pro Ser Thr Gly		
1170	1175	1180
Thr His Pro Gly Ala Ser Pro Gly Pro Arg Ala Thr Pro Leu Arg Arg		
1185	1190	1195
Ala Glu Ser Leu Asp His Arg Ser Thr Leu Asp Leu Cys Pro Pro Arg		
1205	1210	1215

Pro Ala Ala Leu Leu Pro Thr Lys Phe His Asp Cys Asn Gly Gln Met
 1220 1225 1230
 Val Ala Leu Pro Ser Glu Phe Phe Leu Arg Ile Asp Ser His Lys Glu
 1235 1240 1245
 Asp Ala Ala Glu Phe Asp Asp Asp Ile Glu Asp Ser Cys Cys Phe Arg
 1250 1255 1260
 Leu His Lys Val Leu Glu Pro Tyr Ala Pro Gln Trp Cys Arg Ser Arg
 1265 1270 1275 1280
 Glu Ser Trp Ala Leu Tyr Leu Phe Pro Pro Gln Asn Arg Leu Arg Val
 1285 1290 1295
 Ser Cys Gln Lys Val Ile Ala His Lys Met Phe Asp His Val Val Leu
 1300 1305 1310
 Val Phe Ile Phe Leu Asn Cys Ile Thr Ile Ala Leu Glu Arg Pro Asp
 1315 1320 1325
 Ile Asp Pro Gly Ser Thr Glu Arg Ala Phe Leu Ser Val Ser Asn Tyr
 1330 1335 1340
 Ile Phe Thr Ala Ile Phe Val Val Glu Met Met Val Lys Val Val Ala
 1345 1350 1355 1360
 Leu Gly Leu Leu Trp Gly Glu His Ala Tyr Leu Gln Ser Ser Trp Asn
 1365 1370 1375
 Val Leu Asp Gly Leu Leu Val Leu Val Ser Leu Val Asp Ile Ile Val
 1380 1385 1390
 Ala Met Ala Ser Ala Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val
 1395 1400 1405
 Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala
 1410 1415 1420
 Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Arg Pro
 1425 1430 1435 1440
 Ile Gly Asn Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly
 1445 1450 1455
 Ile Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly
 1460 1465 1470
 Thr Asp Thr Arg Asn Ile Thr Thr Lys Ala Glu Cys His Ala Ala His
 1475 1480 1485
 Tyr Arg Trp Val Arg Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala
 1490 1495 1500
 Leu Met Ser Leu Phe Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile
 1505 1510 1515 1520
 Met Tyr Asp Gly Leu Asp Ala Val Gly Ile Asp Gln Gln Pro Val Gln
 1525 1530 1535
 Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile
 1540 1545 1550
 Val Ser Phe Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn
 1555 1560 1565
 Phe His Lys Cys Arg Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg
 1570 1575 1580
 Glu Glu Lys Arg Leu Arg Arg Leu Glu Arg Arg Arg Arg Lys Ala Gln
 1585 1590 1595 1600
 Arg Arg Pro Tyr Tyr Ala Asp Tyr Ser His Thr Arg Arg Ser Ile His
 1605 1610 1615
 Ser Leu Cys Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Phe Ile Ile
 1620 1625 1630
 Cys Leu Asn Val Ile Thr Met Ser Met Glu His Tyr Asn Gln Pro Lys
 1635 1640 1645
 Ser Leu Asp Glu Ala Leu Lys Tyr Cys Asn Tyr Val Phe Thr Ile Val
 1650 1655 1660
 Phe Val Phe Glu Ala Ala Leu Lys Leu Val Ala Phe Gly Phe Arg Arg
 1665 1670 1675 1680
 Phe Phe Lys Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu

	1685	1690	1695
Ser Ile Met Gly Ile Ala Leu Glu Glu	Ile Glu Met Asn Ala Ala Leu		
1700	1705	1710	
Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala			
1715	1720	1725	
Arg Val Leu Lys Leu Leu Lys Met Ala Thr Gly Met Arg Ala Leu Leu			
1730	1735	1740	
Asp Thr Val Val Gln Ala Leu Pro Gln Val Gly Asn Leu Gly Leu Leu			
1745	1750	1755	1760
Phe Met Leu Leu Phe Phe Ile Tyr Ala Ala Leu Gly Val Glu Leu Phe			
1765	1770	1775	
Gly Arg Leu Glu Cys Ser Glu Asp Asn Pro Cys Glu Gly Leu Ser Arg			
1780	1785	1790	
His Ala Thr Phe Thr Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg			
1795	1800	1805	
Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg			
1810	1815	1820	
Glu Cys Thr Arg Glu Asp Lys His Cys Leu Ser Tyr Leu Pro Ala Leu			
1825	1830	1835	1840
Ser Pro Val Tyr Phe Val Thr Phe Val Leu Val Ala Gln Phe Val Leu			
1845	1850	1855	
Val Asn Val Val Ala Val Leu Met Lys His Leu Glu Glu Ser Asn			
1860	1865	1870	
Lys Glu Ala Arg Glu Asp Ala Glu Met Asp Ala Glu Ile Glu Leu Glu			
1875	1880	1885	
Met Ala Gln Gly Ser Thr Ala Gln Pro Pro Pro Thr Ala Gln Glu Ser			
1890	1895	1900	
Gln Gly Thr Gln Pro Asp Thr Pro Asn Leu Leu Val Val Arg Lys Val			
1905	1910	1915	1920
Ser Val Ser Arg Met Leu Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg			
1925	1930	1935	
Pro Val Ala Pro Ala Ala Ala Pro His Ser His Pro Leu Gln Glu Val			
1940	1945	1950	
Glu Met Glu Thr Tyr Thr Gly Pro Val Thr Ser Ala His Ser Pro Pro			
1955	1960	1965	
Leu Glu Pro Arg Ala Ser Phe Gln Val Pro Ser Ala Ala Ser Ser Pro			
1970	1975	1980	
Ala Arg Val Ser Asp Pro Leu Cys Ala Leu Ser Pro Arg Gly Thr Pro			
1985	1990	1995	2000
Arg Ser Leu Ser Leu Ser Arg Ile Leu Cys Arg Gln Glu Ala Met His			
2005	2010	2015	
Ser Glu Ser Leu Glu Gly Lys Val Asp Asp Val Gly Gly Asp Ser Ile			
2020	2025	2030	
Pro Asp Tyr Thr Glu Pro Ala Glu Asn Met Ser Thr Ser Gln Ala Ser			
2035	2040	2045	
Thr Gly Ala Pro Arg Ser Pro Pro Cys Ser Pro Arg Pro Ala Ser Val			
2050	2055	2060	
Arg Thr Arg Lys His Thr Phe Gly Gln Arg Cys Ile Ser Ser Arg Pro			
2065	2070	2075	2080
Pro Thr Leu Gly Gly Asp Glu Ala Glu Ala Ala Asp Pro Ala Asp Glu			
2085	2090	2095	
Glu Val Ser His Ile Thr Ser Ser Ala His Pro Trp Pro Ala Thr Glu			
2100	2105	2110	
Pro His Ser Pro Glu Ala Ser Pro Thr Ala Ser Pro Val Lys Gly Thr			
2115	2120	2125	
Met Gly Ser Gly Arg Asp Pro Arg Arg Phe Cys Ser Val Asp Ala Gln			
2130	2135	2140	
Ser Phe Leu Asp Lys Pro Gly Arg Pro Asp Ala Gln Arg Trp Ser Ser			
2145	2150	2155	2160

Val Glu Leu Asp Asn Gly Glu Ser His Leu Glu Ser Gly Glu Val Arg
2165 2170 2175
Gly Arg Ala Ser Glu Leu Glu Pro Ala Leu Gly Ser Arg Arg Lys Lys
2180 2185 2190
Lys Met Ser Pro Pro Cys Ile Ser Ile Glu Pro Pro Thr Glu Asp Glu
2195 2200 2205
Gly Ser Ser Arg Pro Pro Ala Ala Glu Gly Gly Asn Thr Thr Leu Arg
2210 2215 2220
Arg Arg Thr Pro Ser Cys Glu Ala Ala Leu His Arg Asp Cys Pro Glu
2225 2230 2235 2240
Pro Thr Glu Gly Pro Gly Thr Gly Gly Asp Pro Val Ala Lys Gly Glu
2245 2250 2255
Arg Trp Gly Gln Ala Ser Cys Arg Ala Glu His Leu Thr Val Pro Asn
2260 2265 2270
Phe Ala Phe Glu Pro Leu Asp Met Gly Gly Pro Gly Gly Asp Cys Phe
2275 2280 2285
Leu Asp Ser Asp Gln Ser Val Thr Pro Glu Pro Arg Val Ser Ser Leu
2290 2295 2300
Gly Ala Ile Val Pro Leu Ile Leu Glu Thr Glu Leu Ser Met Pro Ser
2305 2310 2315 2320
Gly Asp Cys Pro Glu Lys Glu Gln Gly Leu Tyr Leu Thr Val Pro Gln
2325 2330 2335
Thr Pro Leu Lys Lys Pro Gly Ser Thr Pro Ala Thr Pro Ala Pro Asp
2340 2345 2350
Asp Ser Gly Asp Glu Pro Val
2355